

How Much Water Can You Afford To Lose?

By Sam Godfrey, TWUA P.E. Committee

Has the extremely hot weather caused problems for your water system? Record setting temperatures and drought conditions are causing water lines to burst throughout Texas. Seasonal weather changes bring about various earth conditions that cause the ground to shift. The earth expands and contracts, causing water pipes to eventually succumb to the ever changing activity. The resulting pipe breakage is costly in terms of wasted water and potential lawsuits. Water leaks can drain your system in more ways than lost water. The cost of lawsuits caused by the liabilities associated with damage created by a leaking water system is enormous.

The Water Purveyor

According to the Texas Natural Resource Conservation Commission, water providers are responsible to the water quality, quantity and prevention of contamination. How much emphasis is put on quantity? The water purveyor is responsible for adequately furnishing water at all times. The monthly

“water unaccountability” that seems to escape from your system each month can make the difference in surviving peak demands. Multiply your monthly loss percentage into gallons and ask yourself if you can afford to lose this much water each month.

Water Leaks

Underground water leaks are “time bombs” waiting to blow your water system apart. Major water line breaks or a combination of leaks can create such a demand, it will deplete a water system of volume and pressure. Losing system pressure may create a back siphonage of contaminants through existing breaks in the piping system. Water leaks are potential cross connections when a leaking underground pipe has the ability to come in contact with an unknown water source such as ground water, wastewater, wet lands or any unknown non-chlorinated water. This condition can result in major health issues if not properly identified and create liabilities.

Liabilities

If a water distribution system isn't properly maintained there can be severe consequences. Liabilities created by water leaks are usually identified after the damage has been administered. A few areas of liability associated with water leakage are:

- **Public Health** - Back siphonage through existing leaks in system
- **Property Damage** - Homes, cracked slabs, driveways and landscaping
- **Road Damage** - Unnecessary excavations, vehicle damage & repairs
- **Utility** - Repairs to gas, electric, phone cable, etc.

Preventative Maintenance

Do you have a preventative maintenance plan for your water distribution system? You can prevent some of the unexpected problems the drought has caused by implementing an ongoing preventative maintenance program. Fixing or replacing something

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when it completely breaks down or “blows out” is not a productive program. Setting up a maintenance checklist of your system will identify and correct conditions that could become emergency situations. One of the most overlooked areas of a water system is the underground section of the distribution system. With the hectic day-to-day operations, it can become “out of site, out of mind” when the problems are not visible. Locating a leak or underground problem with sonic leak detection will eliminate emergency situations and allow adequate time for repairs.

Sonic Leak Detection

An electronic leak detection survey can identify underground leaks that go undetected or eventually “blow out” and cause unnecessary cost. Identifying leaks and eliminating the loss of a valuable resource is essential, especially during the drought conditions. Performing leak detection and routinely checking the water system is a valuable part of an ongoing maintenance program. Sonic leak locating of underground leaks involves

identifying pressure sound differentials while listening on the piping systems. The sounds are created by the water system pressure that is escaping into the atmosphere. Listening on various parts of the system such as angle stops, valves and fire hydrant locations will eventually allow the leak sound to be identified when a leak is present. Various sounds will be audible during the leak detection process and field experience can help identify the sounds needed to identify leak locations.

Implementing a Leak Detection Program

Setting up a preventative maintenance/leak detection program can vary in cost and proficiency depending on the following:

- **Cost of equipment**
- **Availability of man power**
- **Quality of leak detection experience**
- **Type of service performed**

Two options for leak detection programs are to either structure an “in house” crew or contract for outside services. Quality

equipment and designated manpower is a must in order to produce proficient leak detection results. Large cities have the option of an “in house” program that allows leak detection to be performed on a daily basis. Surveying by designated personnel leak detection on a daily basis will insure proficient technicians for the task. Experience is necessary to become an accomplished leak detection technician. Locating leaking pipes underground without a trace of water on the surface can test your patience. With fifteen years of “hands on” leak detection experience, it never amazes me the new things I learn while trying to locate water leaks.

Contract Services

Smaller cities or utilities have the option to budget and contract for professional leak detection services. Surveys and repairs can be budgeted each year and performed annually for a preventative maintenance program without the unnecessary cost for manpower, equipment and additional cost. Budgeting can be structured by the area

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of the water system that is to be checked for leaks. Leak detection surveys can be budgeted and performed as the following:

- **Annual complete system survey** - 100% of system to be surveyed yearly
- **Partial system survey** - Budget for an individual section annually (25% of system each year to be surveyed or four year rotating program)

Planning for the future will eliminate problems and allow much more efficient water use. Water is a very valuable resource to waste and how much can you afford to lose? For more information on leak detection, call Sam Godfrey at (512) 263-7043 or email sgodfrey@samco-leakservice.com